

Van-Cass Intercounty Drain Hearing of Necessity July 24, 2020

Van-Cass Intercounty Drain Drainage Board

Michigan Department of Agriculture & Rural Development
Cass County Drain Commissioner
Van Buren County Drain Commissioner



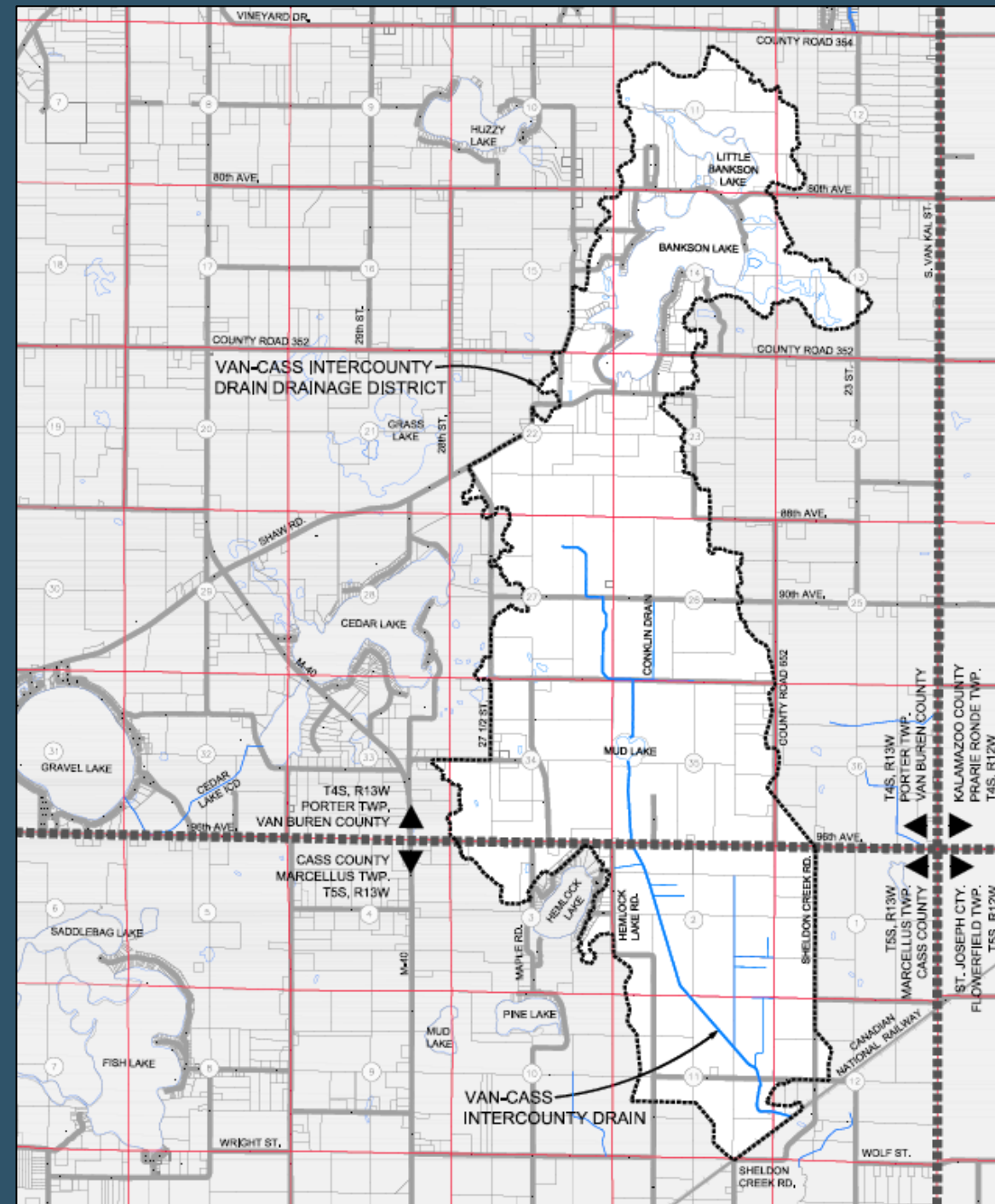
Presentation Overview

- Drain Overview
- Drain History
- Study Purpose
- Drainage Issues
- Evaluation of Alternatives
- Potential Drainage District Revisions
- Next Steps



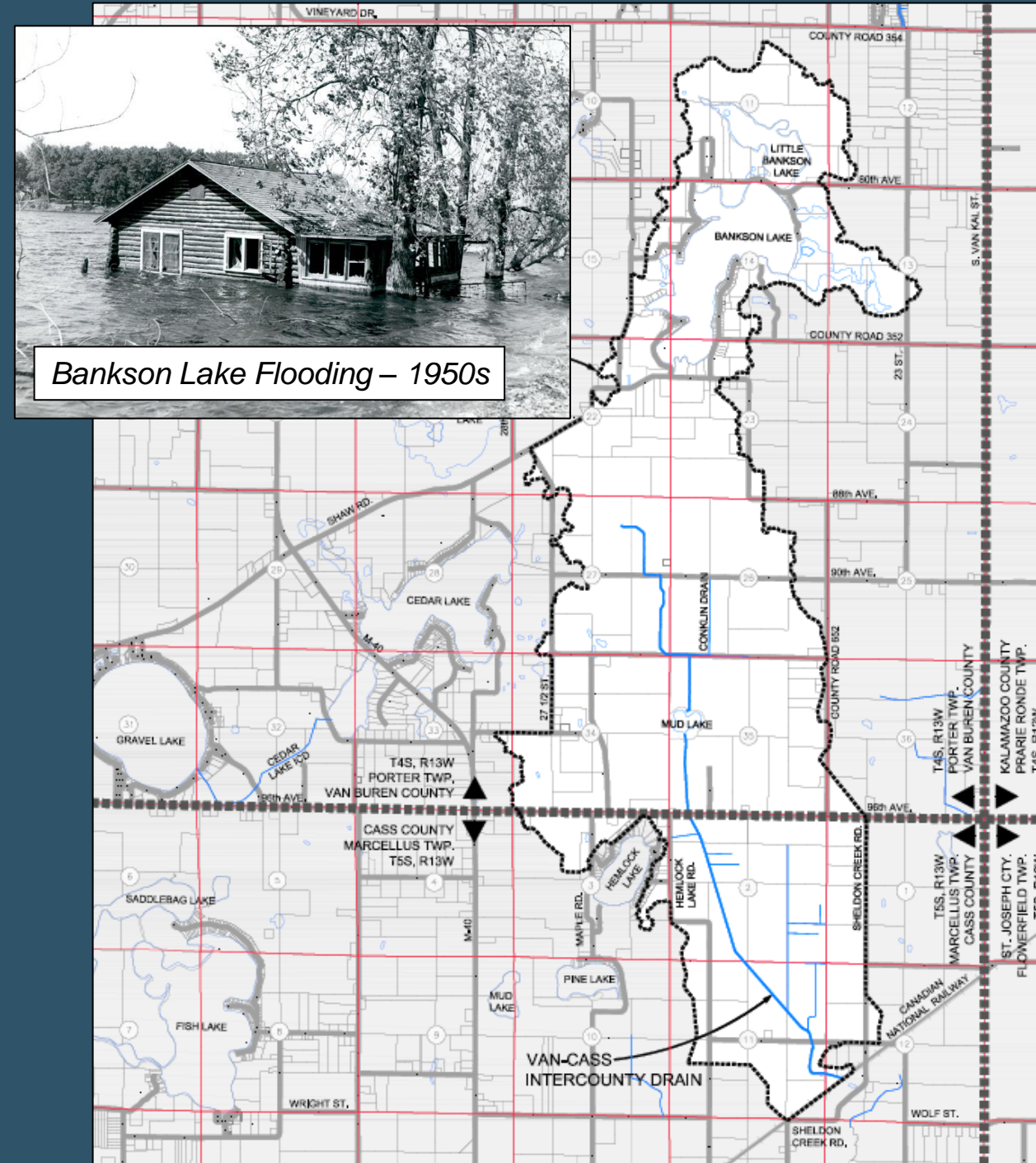
Drain Overview

- Tributary to Rocky River
- Drain Length – 4.1 Miles
- Watershed Area – 5,500 +/- Acres (with 217 Acre Bankson Lake)
- Marcellus Twp. (Cass County), Porter Twp. (Van Buren County)
- Mix of Sand / Loam / Muck Soils
- Residential around Bankson Lake with Agriculture and Forest along Van-Cass ICD



Drain History

- Established in Mud Lake Drain (Van Buren County) in 1902
- Van-Cass Intercounty Drain established in 1920
- Easement Width – 120-ft
- Petition projects for improvements completed in 1939, 1961 and 1969
- On-going maintenance since 1970
- Failed Petition in 1952 to provide gravity outlet for Bankson Lake



Study Purpose

Goals of Engineering Study:

- Alleviate flooding around Bankson Lake
- Provide an adequate gravity outlet for Bankson Lake drainage
- Ensure the Van-Cass Intercounty Drain provides an adequate outlet for the Drainage District



Drainage Issues

Public Health, Convenience or Welfare Issues:

- Flooding / property damage due to high lake levels caused by lack of adequate drainage outlet
- Emergency access becomes difficult when floodwaters overtop driveways and public roads
- Poor drainage can elevate groundwater levels thereby impacting performance of septic fields
- Stagnant / ponding water creates a breeding ground for mosquitos.

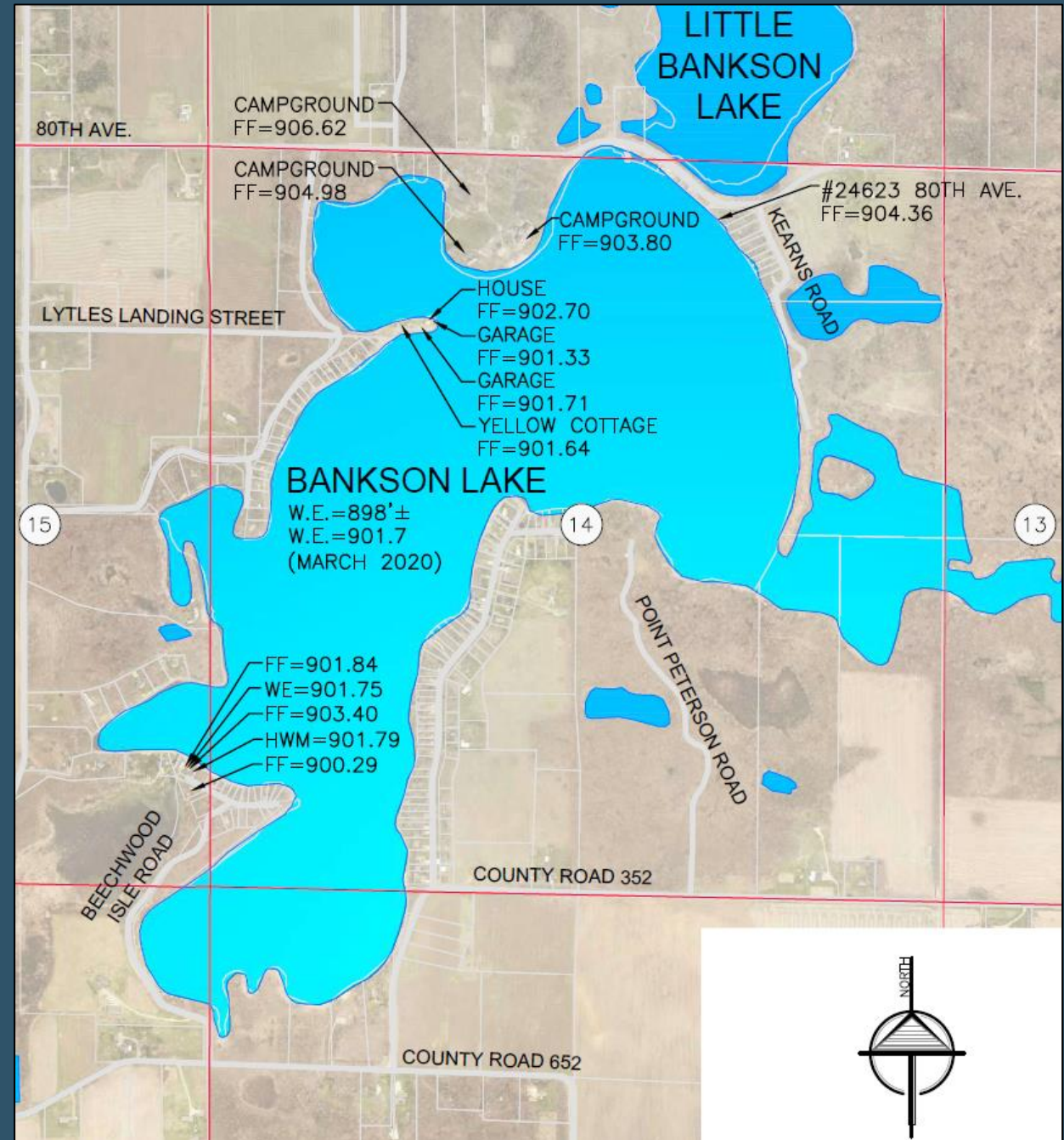
Drainage Issues

- Currently no surface outlet for Bankson Lake drainage
- Sufficient grade exists to provide a gravity outlet for Bankson Lake drainage:
 - Normal water surface 898-ft +/-
 - Invert elevation at 90th Avenue 888-ft +/- (1.5 miles +/- downstream)



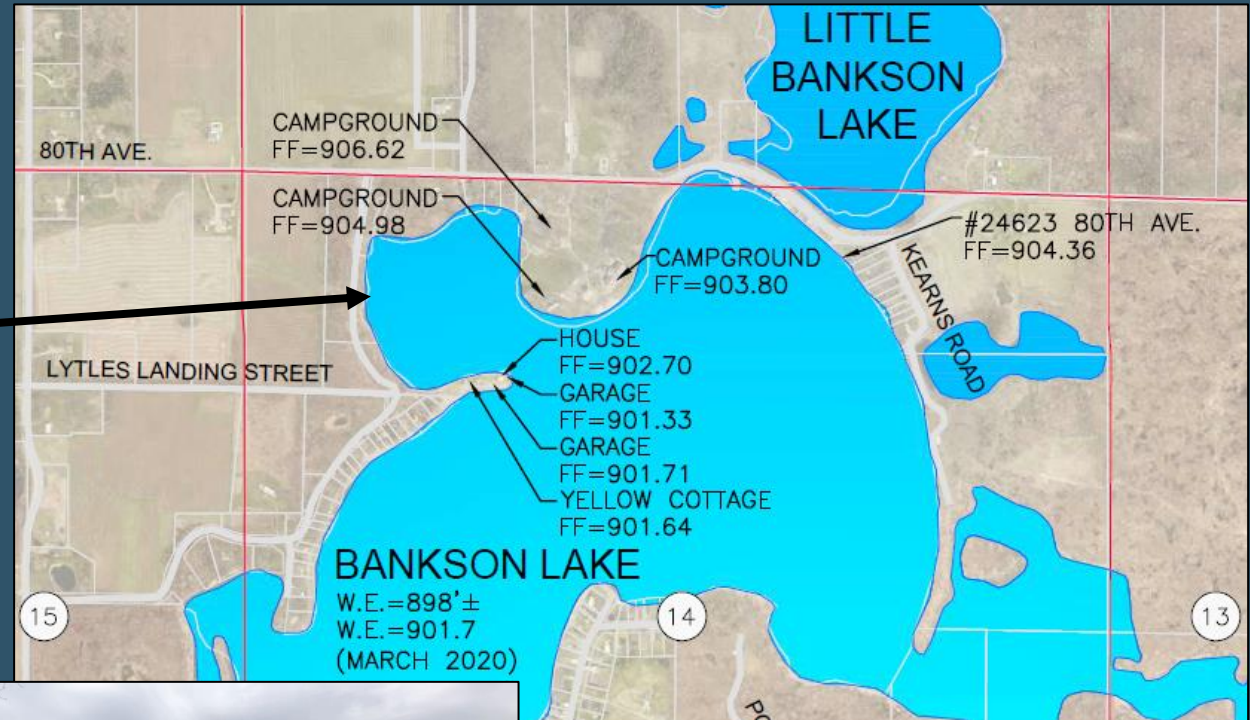
Drainage Issues

- Bankson Lake water surface 3.5-ft +/- above normal (898-ft +/- per USGS)
- Annual Precipitation Data
(MSU Weather Station, Lawton, MI)
 - 2016 – 2019: 37.03 to 41.10-inches
 - 2012 – 2015: 24.50 to 31.25-inches



Drainage Issues

- County Road 652 (Lyttles Landing)
- Flooding



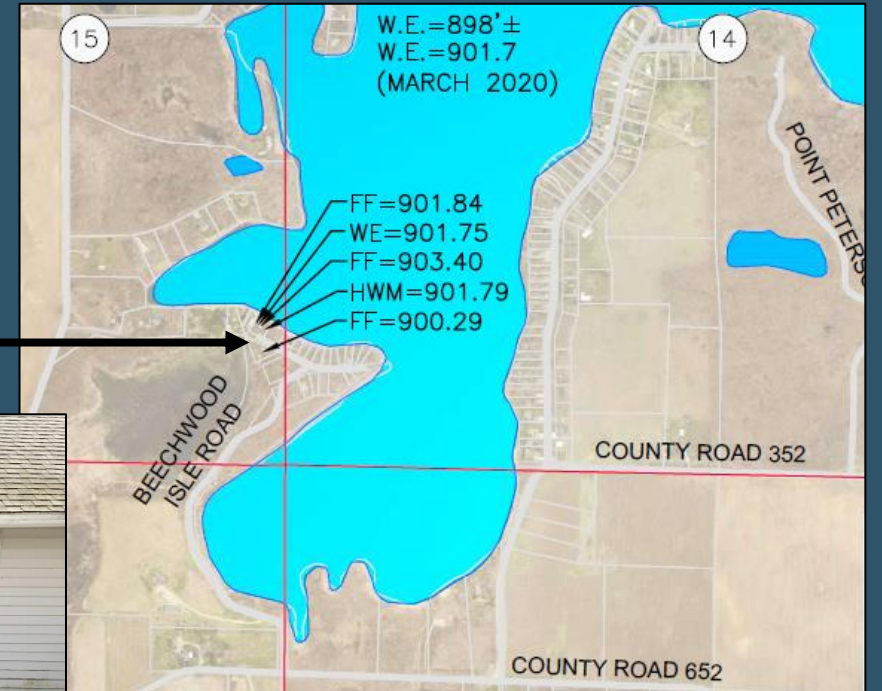
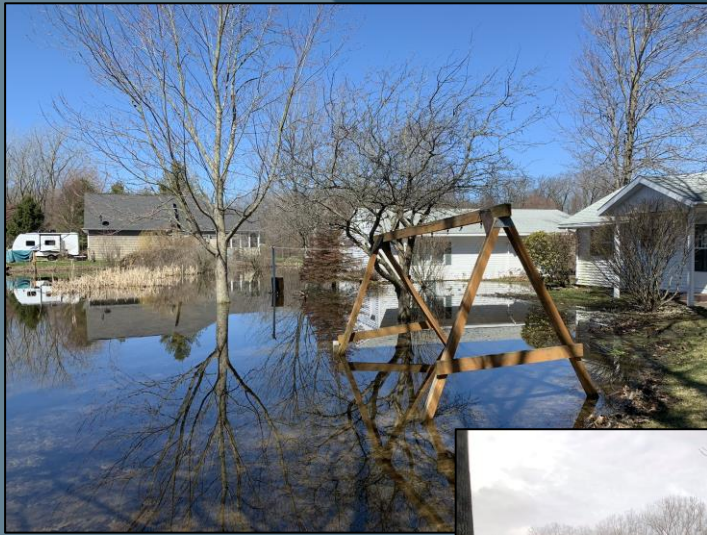
Drainage Issues

- Kolbe Property (81847 Laguna Beach) – Flooding



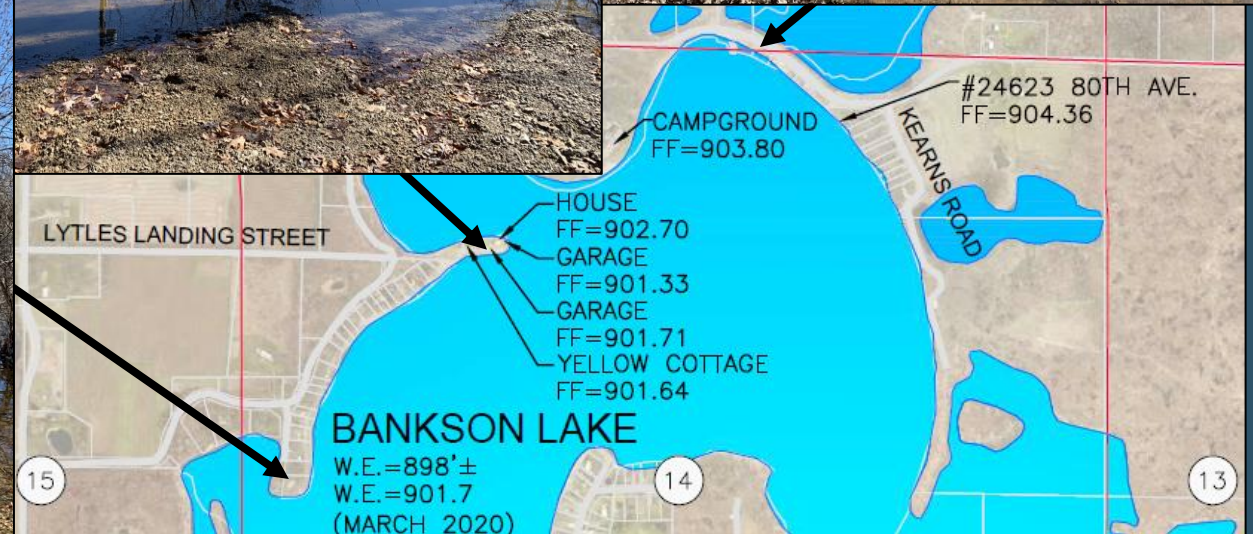
Drainage Issues

- Shore Drive - Flooding



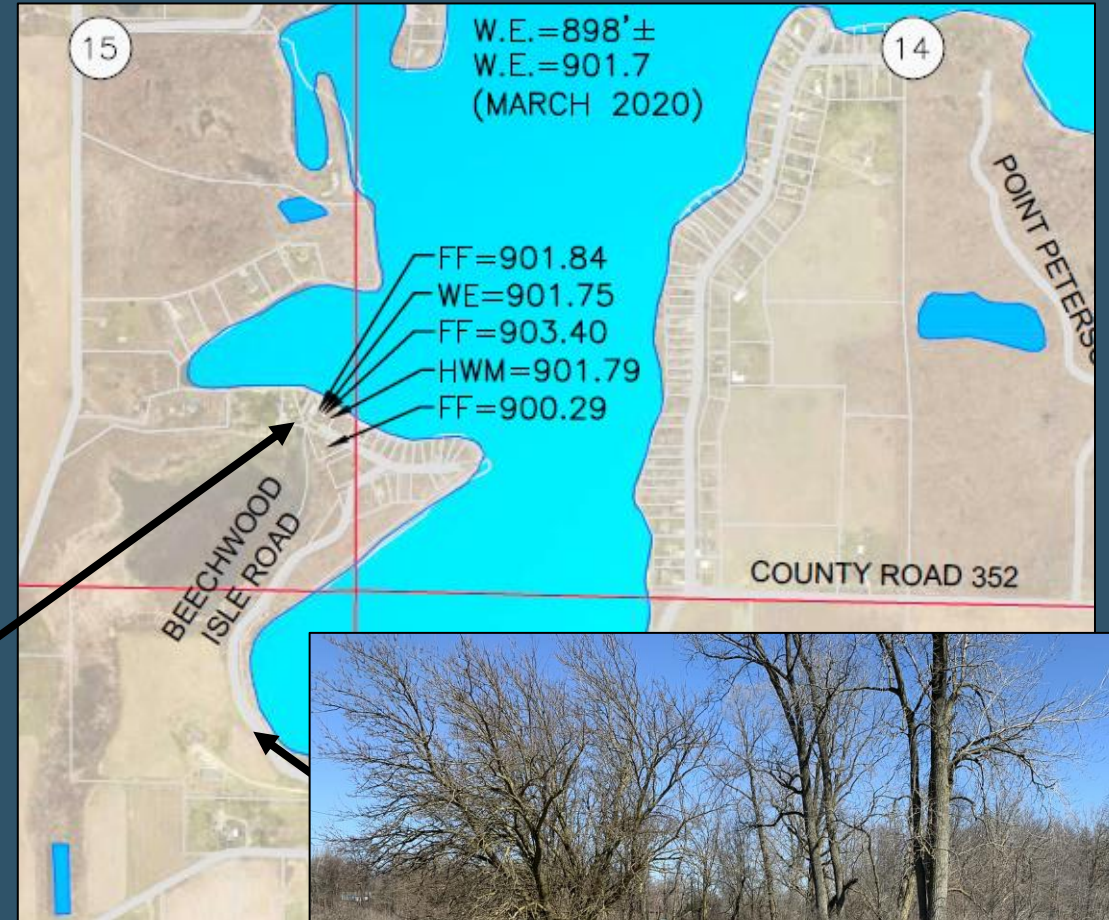
Drainage Issues

- Road / Drive Flooding



Drainage Issues

- South Shore Drive – Road / Drive Flooding



Drainage Issues

- Established Drain generally well maintained and in good condition
- Complaints of flooding during significant storm events at the downstream terminus (CN RR Crossing)



Drain at 96th Ave.

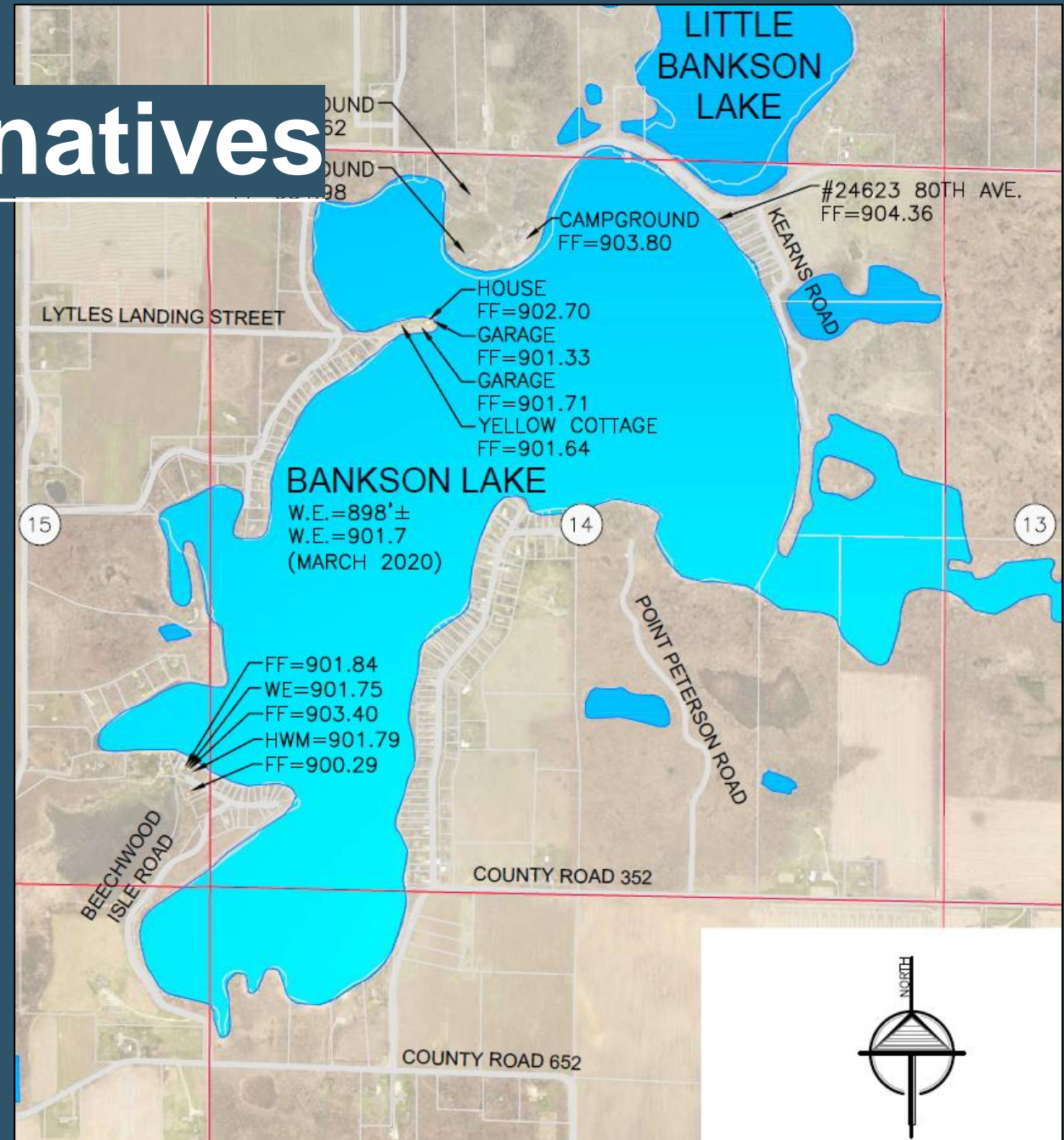


RR – 2017 Flooding

Evaluation of Alternatives

Alternative 1: Do Nothing

- No surface drainage outlet for Bankson Lake sub-watershed (will continue to rely on infiltration and evaporation)
- 100-year (6.15-in in 24-hrs) precipitation event will raise water surface of Bankson Lake by 1.5-ft +/-



Evaluation of Alternatives

Alternative 2: 18-inch Outlet / Open Channel Extension

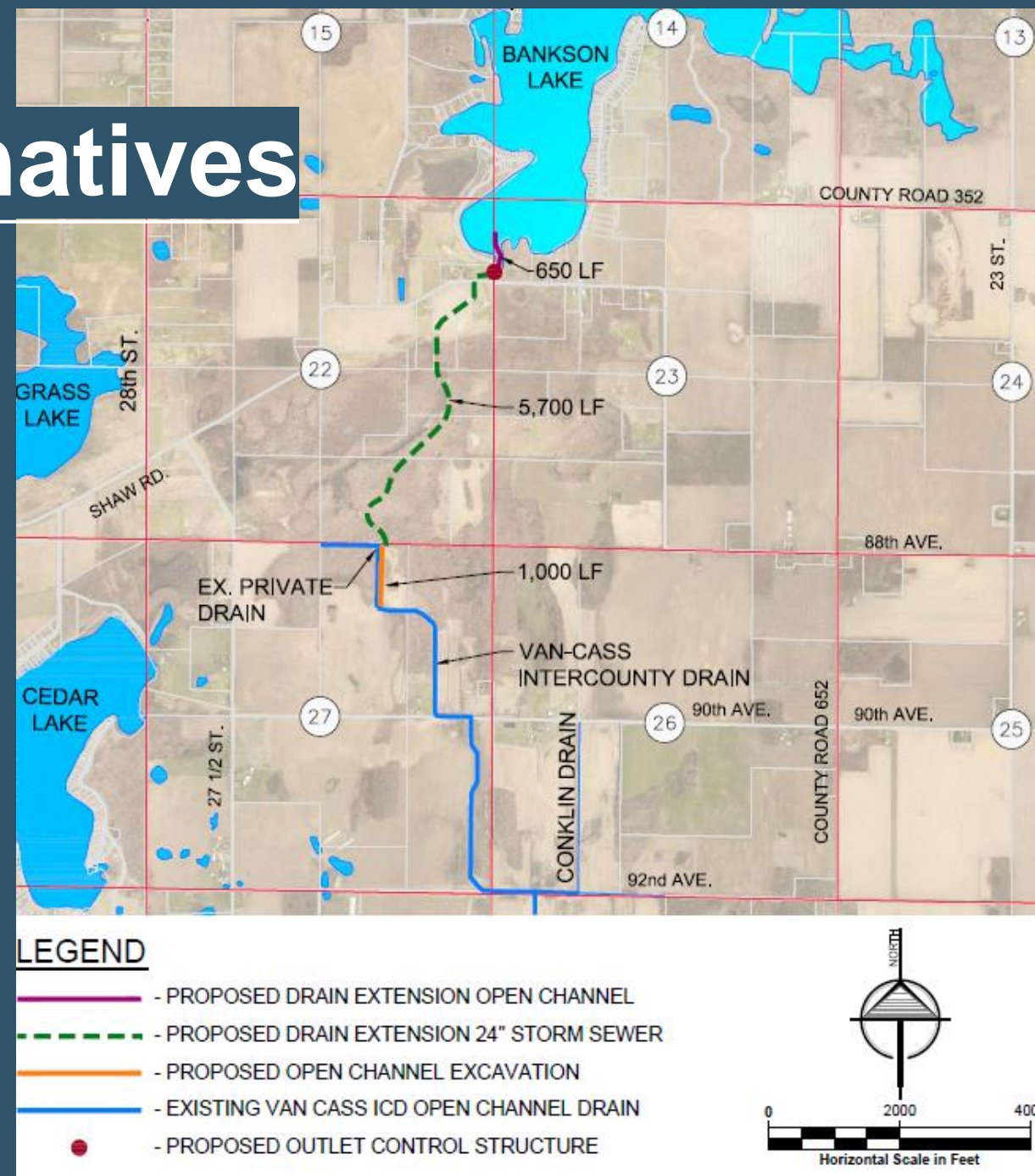
- Goal is to provide an adequate drainage outlet for Bankson Lake sub-watershed to allow lake to slowly draw-down after precipitation events
- Includes the following:
 - Extend Drain to Bankson Lake
 - 1,500-ft 18-in Storm Sewer
 - Approximately 1-mile of Open Channel Excavation
- Estimated cost: \$750k (excluding administrative, land/easement acquisition or financing costs)



Evaluation of Alternatives

Alternative 3: 24-inch Outlet Extension

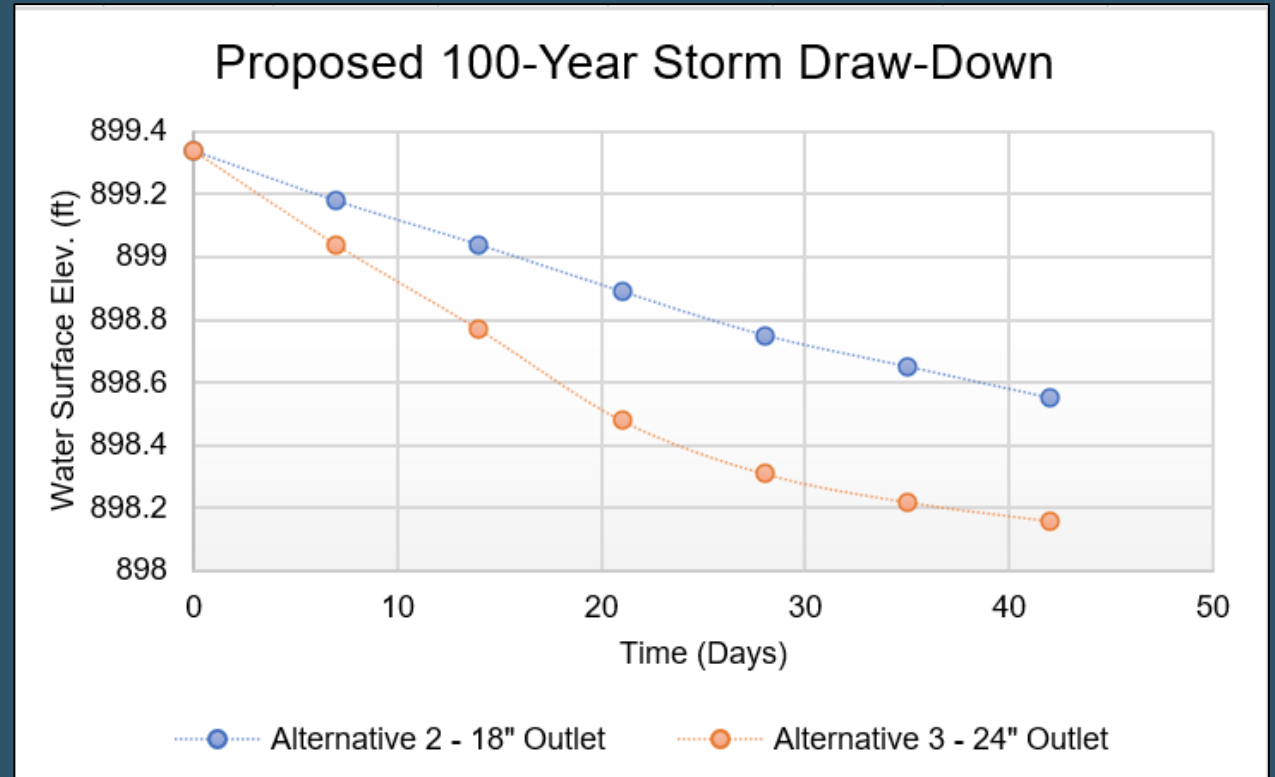
- Goal is to provide an adequate drainage outlet for Bankson Lake sub-watershed to allow lake to slowly draw-down after precipitation events
- Includes the following:
 - Extend Drain to Bankson Lake
 - 5,700-ft 24-in Storm Sewer
 - Minimal Open Channel Excavation
- Estimated cost: \$1.08M (excluding administrative, land/easement acquisition or financing costs)



Evaluation of Alternatives

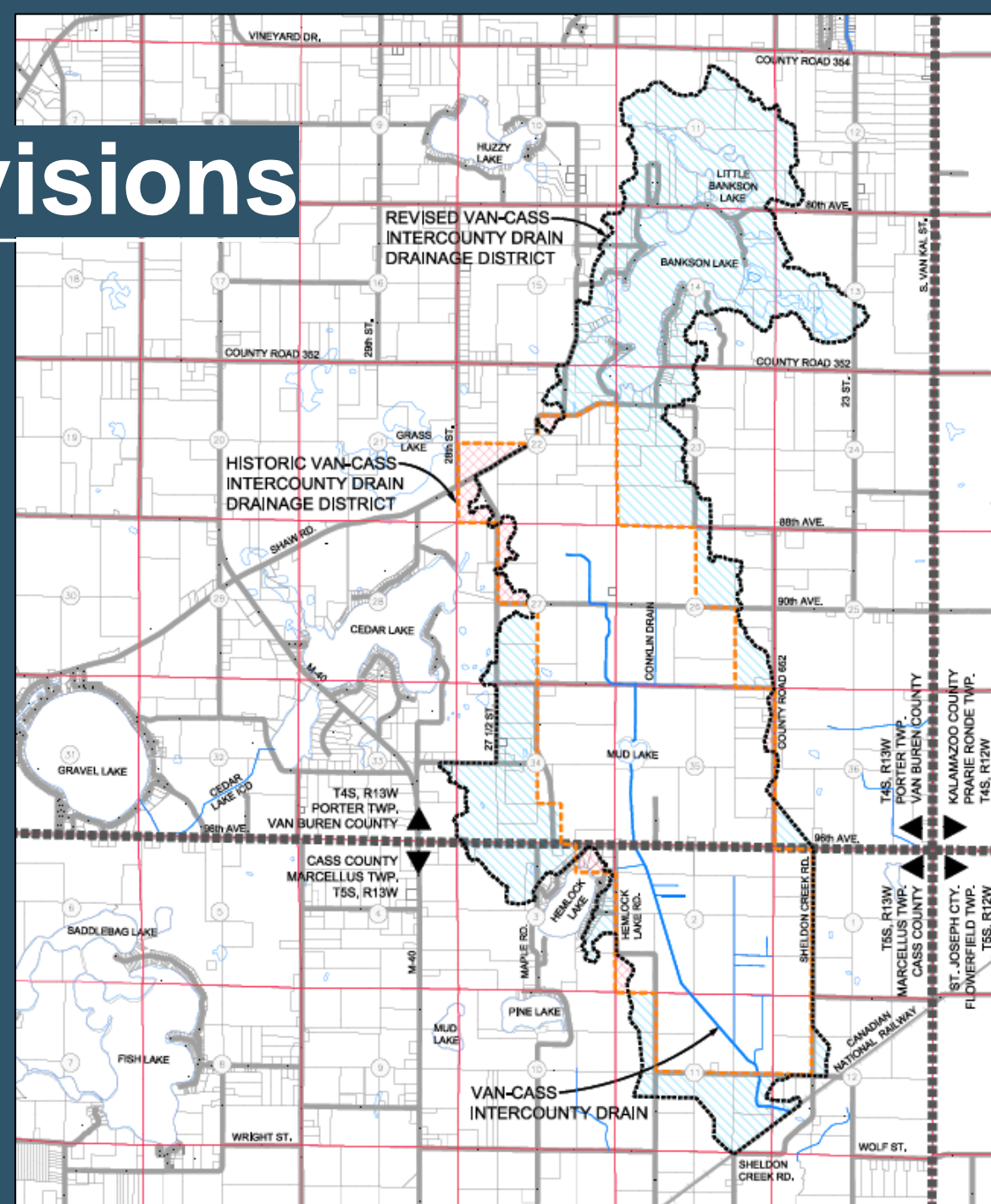
Comparison of Alternatives

- Alternative 2
 - + Less expensive (\$750k)
 - + Increase downstream flow by less than 1%
 - Longer draw-down time
 - Potential permitting issues
- Alternative 3
 - + Shorter draw-down time
 - + Less impact
 - More expensive (\$1.08M)



Drainage District Revisions

- Historic Drainage District: 3,201.04 acres
- Recommendations:
 - Add 2,461.09 acres
 - Remove 141.61 acres
- Revised Drainage District: 5,520.52 acres
 - 4,111.21 acres Van Buren County (75%)
 - 1,409.31 acres Cass County (25%)
 - Approximately 440 parcels (200+/- within Bankson Lake sub-watershed)



Next Steps

Board to decide if petition is necessary:

- If the Board finds that the petition is not necessary, the project ceases immediately and no petition can be heard for the same project until 12 months have passed.
- If the Board finds that the petition is necessary based on health, welfare or convenience, the Board proceeds with a project (the scope of which will be defined later). Each project is unique, however, in accordance with the Drain Code, the following tasks must be completed:
 1. Complete Engineering Design
 2. Obtain Easements
 3. Apply for Permits
 4. Bid Project
 5. Hold “Day of Review”
 6. Construct Project

The End

THANK YOU

LRE